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REMARKS

In the final Office Action mailed April 8, 2005, the Examiner noted that claims 1-10 are pending in the application of which claims 7-9 are allowed and claims 1-6 and 10 are rejected.

In view of the following discussion, Applicants submit that the claims pending in the application are believed to be allowable under 35 U.S.C. § 102. Thus, the Applicants believe that the application is in condition for allowance.

ALLOWABLE SUBJECT MATTER

Applicants thank the Examiner for the allowance of claims 7-9.

REJECTION OF CLAIMS UNDER 35 U.S.C. §102(e)

Claims 1-6 and 10 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,438,652 by Jordan et al. (hereinafter "Jordan"). This rejection is respectfully traversed.

In general, Jordan involves the use of a distributed cache, known as a collection of cooperating cache servers, together with a load balancing monitor to detect and balance overload conditions. In particular, the monitor maintains and shares load condition information with each cache server. As taught in Jordan, the load condition information is computed by the load monitor and identifies cache servers that are capable of handling forwarded requests. Each cooperating cache server services or forwards the user request in accordance with the load condition information distributed by the load monitor.

Jordan, however, does not teach or suggest each and every element of Applicants' invention as recited in independent claim 1. Namely, Jordan fails to teach or suggest at least the limitations of "receiving rank change information for said media clip from the origin server at said each NDPS" and "determining a revised cache layout responsive to the rank change information at said each NDPS". Specifically, Applicants' claim 1 positively recites:

"In a network that includes at least one origin server and a plurality of network distributed proxy servers (NDPS) in communication with said at least

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one origin server, each NDPS including an associated cache, a method for constructing a revised cache layout of a media clip at each NDPS in accordance with a lazy caching approach and token exchange, the method comprising the steps of:

- (a) receiving rank change information for said media clip from the origin server at said each NDPS;
 - (b) determining a revised cache layout responsive to the rank change information at said each NDPS;
 - (c) receiving a client request for at least one segment of said media clip at one of said each NDPS;
 - (d) returning said at least one requested segment from a cache associated with the one of said each NDPS in the case where a requested segment is stored therein; and
 - (e) otherwise, initiating a token exchange with another NDPS that stores the requested segment."
- (Emphasis added.)

In previous Office Actions, the Examiner equated the load condition information of Jordan with the rank change information for a media clip of Applicants' invention. As taught in Jordan, however, load condition information is status information associated with each of the cache servers, where status indicates an overload condition, a normal load condition, or an underload condition. As such, an overall loading condition of an entire cache server, as taught in Jordan, is simply not rank change information associated with a specific media clip, as taught in Applicants' invention of at least claim 1. Thus, the Applicants respectfully maintain that Jordan does not teach or suggest at least Applicants' claimed step (a) of "receiving rank change information for said media clip from the origin server at said each NDPS."

In response to Applicants' arguments of the previous Office Action response, the Examiner states that Jordan (Col. 6, Lines 20-41) illustrates a load monitor's attempt at balancing loads among cache servers, and specifically points to Jordan's teaching that "[t]he forward frequency represents the number of times a request for an object has been forwarded." This portion of Jordan referenced by the Examiner, however, specifically states that "the load monitor can decide whether or not to continue shifting some or all forwarded requests from an overloaded cache server...to an underloaded cache server..." Thus, Jordan merely teaches load balancing between cache servers based on total load on the cache servers. Load balancing between cache servers based

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on the total load on the cache servers, as taught in Jordan, is simply not receiving rank change information for a media clip, as taught in Applicants' claim 1. As such, the portions of Jordan referenced by the Examiner do not teach or suggest at least the Applicants' claimed step (a) of "receiving rank change information for said media clip from the origin server at said each NDPS."

Furthermore, in response to Applicants' arguments of the previous Office Action response, the Examiner states that Jordan (Col. 6, Lines 50-64) illustrates that requests for objects are counted and interpreted as the ranking of the load of each of the servers, and specifically points to Jordan's teaching that "[t]he load monitor examines the load table to see if the server is overloaded with requests [and], if so, the load monitor finds an underloaded server and assigns it as the new or shared owner of the requested object." This portion of Jordan, however, is directed towards steps performed by a central load monitor in response to a request from a cache server due to a cache miss. As such, Applicants again maintain that Jordan merely teaches that a central load monitor performs load balancing based on the overall load on each of the cache servers. Jordan does not teach receiving rank change information for a media clip.

Additionally, this portion of Jordan referenced by the Examiner teaches that if a requested object cannot be found in the caching table (i.e., a cache miss), a new entry is created for the object, and that after the new entry is located in the caching table, the forwarding frequency is updated. As taught in Jordan, however, forwarding frequency simply comprises the number of times requests for the object have been forwarded to a load monitor in response to a cache miss. The number of times requests for the object have been forwarded to a load monitor in response to a cache miss, as taught in Jordan, is simply not receiving rank change information for a media clip, as taught in Applicants' claim 1. As such, the portions of Jordan referenced by the Examiner do not teach or suggest Applicants' claimed step (a) of "receiving rank change information for said media clip from the origin server at said each NDPS."

Moreover, the Examiner further asserts that the change of ownership is signaled from the load monitor to the proxy servers and changes the server load rank. Jordan, however, discloses that ownership of an object is changed from an overloaded cache

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server to an underloaded cache server. In other words, Jordan merely teaches load balancing based on total load associated with each of cache servers. Thus, even if Jordan did teach the signaling of such information, Jordan would merely teach that each of the other cache servers is notified of an object ownership change in response to overall load associated with the cache servers. As such, information specifying a change in ownership of an object based on overall cache server load, as taught in Jordan, is simply not rank change information for a media clip, as taught in Applicants' claim 1. Furthermore, Jordan is completely devoid of any teaching, showing, or suggestion of receiving rank change information for a media clip. As such, the portions of Jordan referenced by the Examiner do not teach or suggest at least Applicants' claimed step (a) of "receiving rank change information for said media clip from the origin server at said each NDPS."

With respect to Applicants' claimed step of "determining a revised cache layout responsive to the rank change information at said each NDPS", Jordan is merely concerned with identifying cache server loading conditions. Jordan is silent as to any teaching that each server in the collection of cooperating cache servers computes or determines the revised cache layout in response to the rank change information. Rank change information is not even received at the cache servers. As such, even if the cache servers were able to perform a determining step, any such determining step would be unable to be performed in response to rank change information for a media clip. As taught in Jordan, however, cache servers are not even described as doing any computation or determination on any kind of information, much less rank change information associated with a media clip or even load condition information. Jordan's cache servers do not revise a cache layout. Instead, Jordan's servers directly service or forward client requests in accordance with the load condition information distributed by the load monitor. As a result, Jordan does not teach or suggest at least the Applicants' claimed step (b) of "determining a revised cache layout responsive to the rank change information at said each NDPS."

In response to Applicants' arguments of the previous Office Action response, the Examiner states that the determining of the revised cache layout responsive to the rank

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change information is seen in the load monitor's reassigning of the requested object to the cache requesting it (Jordan, Col. 7, Lines 4-12). The Applicants respectfully maintain, however, that Jordan is completely devoid of any teaching, showing, or suggestion of rank change information. The portions of Jordan referenced by the Examiner merely state that a new object owner may request a copy of an object from the originating object server, and that load checking may be performed in response to an identified overload or underload trend. A request for a copy of an object, as taught in Jordan, is simply not determining a revised cache layout, as taught in Applicants' invention.

The Examiner further asserts that the assigning and changing of ownership of the requested object is directly responsive to the rank change information from the load monitor. As taught in Jordan, however, the "shifting of ownership can be based on the load condition of the servers, the forwarding frequency..." (Jordan, Col. 6, Lines 46-48). As taught in Jordan, forwarding frequency simply comprises the number of times requests for the object have been forwarded to a load monitor in response to a cache miss. Thus, overall load conditions of the cache servers and forwarding frequency, as taught in Jordan, are mutually exclusive from rank change information, as taught in Applicants' invention. Furthermore, nowhere in Jordan is there any teaching or suggestion of rank change information of a media clip, much less of receiving rank change information associated with a media clip and determining a revised cache layout responsive to the rank change information. As such, the portions of Jordan referenced by the Examiner do not teach or suggest at least the Applicants' claimed step (b) of "determining a revised cache layout responsive to the rank change information at said each NDPS."

Therefore, at least for the reasons discussed above, Jordan fails to teach, show, or suggest each and every element of Applicants' invention of at least independent claim 1. As such, the Applicants submit that independent claim 1 is allowable under 35 U.S.C. §102. Furthermore, the Applicants' remarks presented above with respect to step (a) and step (b) of claim 1 apply with equal force to the corresponding "means" clauses of independent claim 10. In light of the earlier remarks, it is submitted that the

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Jordan reference does not teach, show, or suggest each and every element of the system defined by Applicants in claim 10. Therefore, it is believed that claim 10 is not anticipated by the Jordan reference. Hence, Applicants respectfully submit that claim 10 is allowable under 35 U.S.C. §102.

As such, the Applicants submit that independent claims 1 and 10 are allowable under 35 U.S.C. §102. Furthermore, dependent claims 2-6 depend, either directly or indirectly, from independent claim 1 and recite additional limitations thereof. Thus, and for at least the same reasons discussed above with respect to claim 1, Applicants submit that these dependent claims are also not anticipated by Jordan and are allowable under 35 U.S.C. §102. Therefore, Applicants respectfully request that the rejections be withdrawn.

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CONCLUSION

In view of the foregoing amendments and remarks, Applicants respectfully submit that this application is in condition for allowance. Reconsideration and allowance are respectfully solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone Eamon J. Wall, Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

6/7/05

EJ Wall

Eamon J. Wall
Attorney for Applicants
Reg. No. 39,414

Moser, Patterson & Sheridan, LLP
595 Shrewsbury Avenue, Suite 100
Shrewsbury, NJ 07702
Telephone: (732) 530-9404
Facsimile: (732) 530-9808

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